



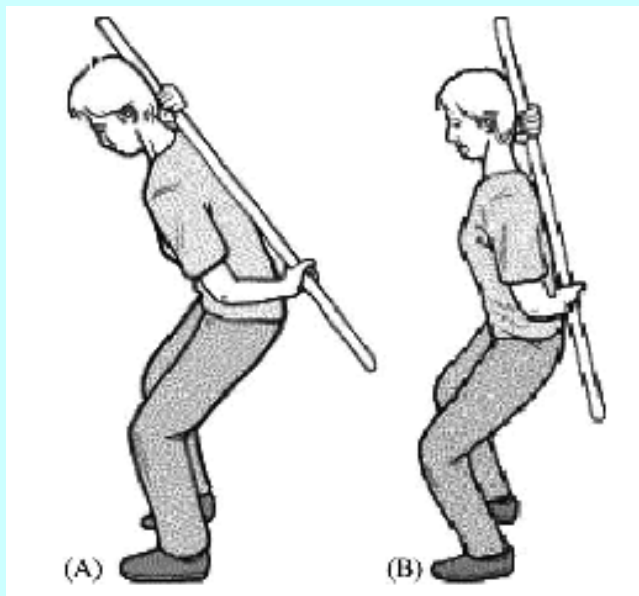
## MILITARY SEALIFT COMMAND

## How to Take Care of Your Back

Did you know that according to the American Chiropractic Association:

- back problems are the second leading cause of all office visits to primary care physicians (after colds)?
- low back pain is the leading cause of disability in persons younger than 45?
- the highest prevalence of low back pain is in persons age 30 to 50?
- 16% of MSC's mishaps in 2010 were lifting injuries usually involving back injuries?

Perhaps even more importantly, are you aware that the majority of low back problems are preventable? Some back pain, of course, is caused by factors such as traumatic accidents, infection, malignancy (tumors) and congenital defects. This type of pain is generally not preventable. Most low back pain, however, is avoidable if only people had the appropriate knowledge and skills.



Hip Hinging: (A) Incorrect Stopping and (B) Correct Squatting

### Body Mechanics

A major factor in preventable low back pain is **poor body mechanics**. Poor body mechanics can occur in sitting, standing, walking, sleeping, lifting and exercising as well as how you perform daily living activities. It is difficult to have proper body mechanics if important major muscles are weak and/or tight.

### Neutral spine

A key component necessary for understanding proper body mechanics is the concept of the **neutral spine**, or the spine that is in ideal alignment. Generally speaking, a neutral spine should be maintained throughout all daily activities, no matter what a person is doing. Is your spine neutral right now, at this moment, as you are reading this article? For ideal back care, we maintain a neutral spine as much as possible when standing, driving, sitting, sleeping, and lifting.

### The hip hinge

Learning to hinge your trunk from your hips is crucial for avoiding repetitive strain to your lower back or neck. The figure above shows with a stick on your back how it is possible to keep the spine upright by hinging from the hips as you bend your knees. In contrast, if you bend at the waist the spine flexes forward putting the low back and neck in potentially harmful positions. This hip hinge can be used during a variety of tasks.

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### Picking up a bag from the floor

Here it is important to bend from the hips and knees while maintaining the low back's natural curve by keeping it curved forward.

### Lifting

The most important aspect of lifting is to keep your spine upright by hinging from the hips and knees. Even if the object is awkwardly placed so that it is not directly in front of you the key is to keep your chest lifted in front while maintaining your lumbar spine's natural forward curve. Two other key points which will save you from irritating your back are (1) to avoid lifting during the first half hour of the day without stretching, and (2) to avoid lifting immediately after sitting for a prolonged period.

Traditionally, the most important rule in lifting has always been to "keep your back straight" and "bend with the knees – not the back." Recent literature suggests that it is better to maintain the normal curve in your low back at all times and avoid forward bending whenever possible. You should also lightly contract your buttocks and abdominal muscles to help stabilize the spine, and avoid twisting, whenever performing a lift.

It is also important to keep the objects you are lifting as close in to your body as possible. The farther away from your body an object is, the greater is the strain it places on your spine.

Also, whenever possible, try to avoid lifting from the floor – place things at knee, waist, or chest height. Finally, plan your lift before its execution to be sure your path is clear, etc.

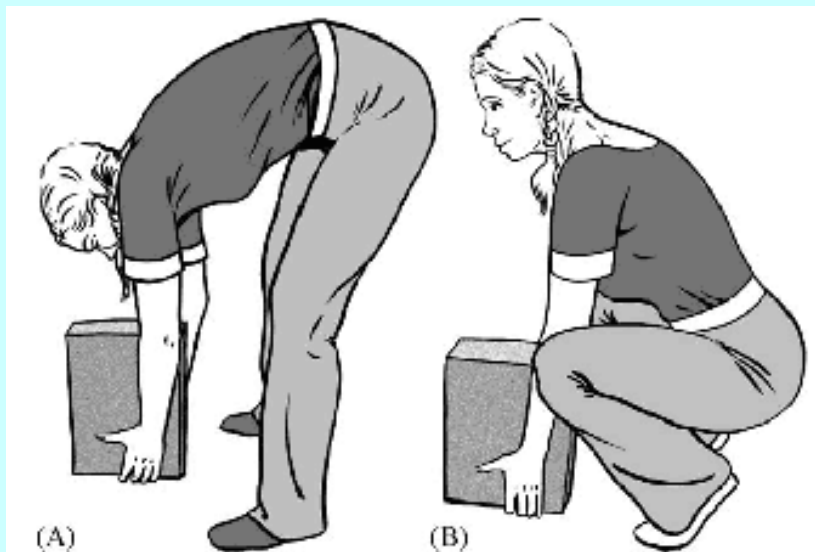
The most dangerous position for your lower back is the combination of forward bending and twisting – this should be avoided to the maximum extent practicable. Reaching for things above shoulder level is another strenuous activity for your back. Using a foot stool is a good way to reduce the strain. If a foot stool is unavailable, remember to lightly contract your buttocks and abdominal muscles. Pushing and pulling can be yet another source of back strain. If given a choice between the two, pushing is preferred because the legs can be used more effectively.

Recent studies suggest that the back is especially vulnerable to injury immediately following a period of prolonged forward bending or inactivity like sitting for several minutes or sleeping. **IN FACT, THE MOST SIGNIFICANT INJURY PREDICTOR IS NOT THE TASK, BUT IN WHAT ACTIVITIES YOU HAVE BEEN PERFORMING OVER THE DAYS AND MINUTES PRIOR!** Following times of inactivity, a warm-up should be performed before attempting to lift anything, and even then remember to pay extra-special attention to using proper lifting technique.

From: Steel Feather training and Journal of Bodywork and Movement Therapies



Picking up a bag: (A) Incorrect and (B) Correct



Lifting: (A) Incorrect and (B) Correct

## SHIPS CERTIFICATES

There is a lot of confusion over which certificates MSC ship should have and why. The why part is easy; The Chief of Naval Operations (CNO) made a policy decision that MSC should obtain commercial certificates for ships that can meet those standards. Which certificates to maintain is a little more complicated and dependent on mission, type of ship, and construction standards used.

The CNO issued a letter on 25 February 1985 directing MSC to “continue to adhere to and use the practices and procedures of the commercial merchant marine shipping industry, including classification of ships with the American Bureau of Shipping (ABS) and certification with the U.S. Coast Guard (USCG) for the design, construction, operation, maintenance and repair of MSC ships.” All MSC ships are classed by ABS.

The USCG is responsible for issuing Certificate of Inspections (COIs). However the USCG has authorized ABS to issue certain certificates on behalf of USCG to MSC ships. Some of the Naval Fleet Auxiliary transfers from the U.S. Navy were built to U.S. Navy standards and do not have a USCG Certificate Of Inspection (COI). Although these ships do not have inspections for the issuance of a COI, compliance with the licensing, drills, and incident reporting is still required in accordance with a memorandum of agreement between USCG and MSC.

In a message on 24 March 1998 Commander Military Sealift Command (COMSC) provided direction on international certificates. Recognizing an exemption for naval auxiliaries in the International Maritime Organization (IMO) conventions, the message states “it is the intention of MSC to voluntarily comply with the spirit of applicable Safety Of Life At Sea (SOLAS) and Marine Pollution (MARPOL) conventions.” Therefore, all MSC owned ships shall obtain Statement of Voluntary Compliance (SOVC) and or Statement Of Fact (SOF) certificates for applicable SOLAS and MARPOL conventions. SOVCs are obtained when ships can full comply with SOLAS or MARPOL. SOFs are obtained when ships are physically unable to comply fully with the requirements of MARPOL or SOLAS (but comply in as far as is reasonable and practicable). One-reason ships obtain SOVCs or SOFs instead of International SOLAS and/or MARPOL Certificates is that ships with sovereign immunity are exempt from SOLAS. The sovereign immunity status means that our vessels are not subject to foreign port state control. The SOVC or SOF is validation of our commitment to operating safely and protecting the environment.

The required certificates or SOVCs ships maintain are:

- Certificate Of Inspection, COI (CG-841) (applies to most ships)
- Safety Construction SOVC (not on ships built to MILSPEC standards)
- Safety Radio SOVC
- Safety Equipment SOVC
- Safety Management SOVC
- International Oil Pollution Prevention SOVC
- International Air Pollution Prevention SOVC
- International Sewage Pollution Prevention SOVC
- Antifouling System SOVC
- International Load Line (LL-A)
- Certificate of Admeasurement (CG-1414)
- International Tonnage Certificate (LL-115E)

Suez Canal Certificate (CF-1417)

Panama Canal Certificate (OMB 3207-0001)

Continual Synopsis Record

Ship Sanitation Control Exemption Certificate/ Ship Sanitation Control Certificate (SSCES/ SSCC)

In addition to the above certificates, the mission of the ship may mandate additional certificates issued by ABS, authorized equipment, representatives, or the navy such as Crane Certificates, Helicopter Deck Certificates, Elevator Certificates, and Calibration Certificates.

Maintenance of these numerous certificates is the responsibility of both the ship and shore support groups.

If you have any questions about required shipboard certificates, contact N73 office. Contacts are provided on the back of this newsletter.

## **Environmental**

Amendments to MARPOL Annex I entering into force on 1 Jan 2011 add the following new definitions to Regulation 1:

.31 Oil residue (sludge) means the residual waste oil products generated during the normal operation of a ship such as those resulting from the purification of fuel or lubricating oil for main or auxiliary machinery, separated waste oil from oil filtering equipment, waste oil collected in drip trays, and waste hydraulic and lubricating oils.

.32 Oil residue (sludge) tank means a tank which holds oil residue (sludge) from which sludge may be disposed directly through the standard discharge connection or any other approved means of disposal.

.33 Oily bilge water means water which may be contaminated by oil resulting from things such as leakage or maintenance work in machinery spaces. Any liquid entering the bilge system including bilge wells, bilge piping, tank top or bilge holding tanks is considered oily bilge water.

.34 Oily bilge water holding tank means a tank collecting oily bilge water prior to its discharge, transfer or disposal.

In addition, the following new paragraph 2 is added to Regulation 12, after existing paragraph 1. Existing paragraphs 2 and 3 are renumbered 3 and 4:

2 Oil residue (sludge) may be disposed of directly from the oil residue (sludge) tank(s) through the standard discharge connection referred to in regulation 13, or any other approved means of disposal. The oil residue (sludge) tank(s):

1. shall be provided with a designated pump for disposal that is capable of taking suction from the oil residue (sludge) tank(s); and
2. shall have no discharge connections to the bilge system, oily bilge water holding tank(s), tank top or oily water separators except that the tank(s) may be fitted with drains, with manually operated self-closing valves and arrangements for subsequent visual monitoring of the settled water, that lead to an oily bilge water holding tank or bilge well, or an alternative arrangement, provided such arrangement does not connect directly to the bilge piping system.

## Health and Safety

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# A Smoke Free New Year

Recently the BALTIMORE SUN had a story about a home fire that was caused by careless smoking. Someone discarded a cigarette into leaves by the front porch. After smoldering for a few hours, it erupted into flames. The owner of that home was lucky. No one was injured and the damage to the home was minimal.

Other people have not been so fortunate. That same day, 15 people in St. Joseph, Missouri lost their home to fire. The Fire Marshall reported that the fire was started when a resident tossed a cigarette outside his apartment. "Apparently, the wind picked up the cigarette and lodged it between a deck post and the siding. From there, the fire formed a perfect arch up the side of the structure, under the eaves and into the attic. The fire raced across the attic, and the upper structure was fully involved when firefighters arrived on the scene."<sup>1</sup>

Also on that same day in Arkansas, an 80 year old man died as a result of injuries suffered in a fire. The victim was a known heavy smoker who also used oxygen in the home.<sup>2</sup> And, earlier that month, a fire killed two children and injured three adults in Oklahoma. This fire was caused by "smoking material" discarded in a kitchen trash container.<sup>3</sup>

According to the National Fire Protection Association (NFPA), there were an estimated 114,800 smoking-material fires in the United States in 2008. Fires caused by smoking materials are the number one cause of preventable home fire deaths.<sup>4</sup> These fires caused 680 civilian deaths, 1,520 civilian injuries and \$737 million in direct property damage. Most smoking-related deaths occur in living rooms, family rooms or bedrooms, according to the NFPA. And it is not just the smoker who is in danger. One fourth of those who died were victims of someone else's carelessness.

Cigarettes are also unsafe for the environment. It is estimated by the NFPA that up to 90,000 wildfires every year are caused by cigarettes. They threaten our environment in other ways. Cigarette butts are actually tiny packets of toxins that, once littered, enter our marine ecosystems and play havoc on our wildlife and water quality.<sup>5</sup> Cigarettes pollute the ground we walk on and the air that we breathe.

If you are a smoker, now is the perfect time to take the first step towards quitting. It may be the most difficult thing that you do but *you can do it*. It has been shown that medication and counseling are both effective tools to assist you to become tobacco-free. By combining these tools you will increase your rate of success. And, now to encourage your use of these tools, the Office of Personnel Management has announced that starting in 2011 all Federal Employees Health Benefits (FEHB) Program enrollees will have full access to treatments that are proven to help them quit smoking and using tobacco. Anyone covered under an FEHB Program health plan (including covered family members for those with a Self and Family enrollment) can take advantage of the benefit. Additional information about the tobacco cessation benefit is available at <http://www.opm.gov/insure/health/nosmoking/index.asp>.

Make 2011 your year to be tobacco-free. You will feel better and the world will be a safer place!

<sup>1</sup> <http://www.newspressnow.com/localnews/25956759/detail.html>

<sup>2</sup> <http://www.baxterbulletin.com/article/20101130/NEWS01/11300319/1002>

<sup>3</sup> <http://newsok.com/smoking-materials-cited-in-norman-fire/article/3511841>

<sup>4</sup> <http://nfpa.org>

<sup>5</sup> [http://www.cawrecycles.org/issues/cigarettes/toxic\\_trash](http://www.cawrecycles.org/issues/cigarettes/toxic_trash)



## Safety Statistics for FY 2010

The table below displays Class C incidents, first aid cases, and near misses for FY 2010. Our MSC fleet has had one class A incident (private motor vehicle accident), one class B incident (man-lift incident), 103 class C incidents, 303 first aid cases, and reported 38 near misses during FY 2010. Near miss reporting is double from last year! Keep up the good work. Near miss reporting is a preventive action and it assists the ship that reported the near miss in evaluating the conditions and actions which led to the near miss. This information is then shared with others to prevent reoccurrence and to heighten safety considerations. Keep the near miss reports coming. Class C incidents increased slightly from 2009. Class B incidents decreased from three in 2009 to one in 2010.

### Near Miss Incidents: 38

Slips/Trips/Falls-2	Fires - 14	Mat. Damage - 1	Collisions - 9	Spill -3
Equipment failure - 3	Inhale - 1	Contact - 3	Electrical - 1	

### First Aid Incidents: 303

Slips/Trips/Falls - 77	Debris in eye - 28	Exertion - 11	Equip Fail - 2
Lifting /Back Injury - 46	Cuts/Knife - 25	Chipping - 3	PMV - 4
Contact - 53	Pulling - 3	Repetition - 4	Other - 12
Pinch Points - 23	Burn - 11	Fire -1	

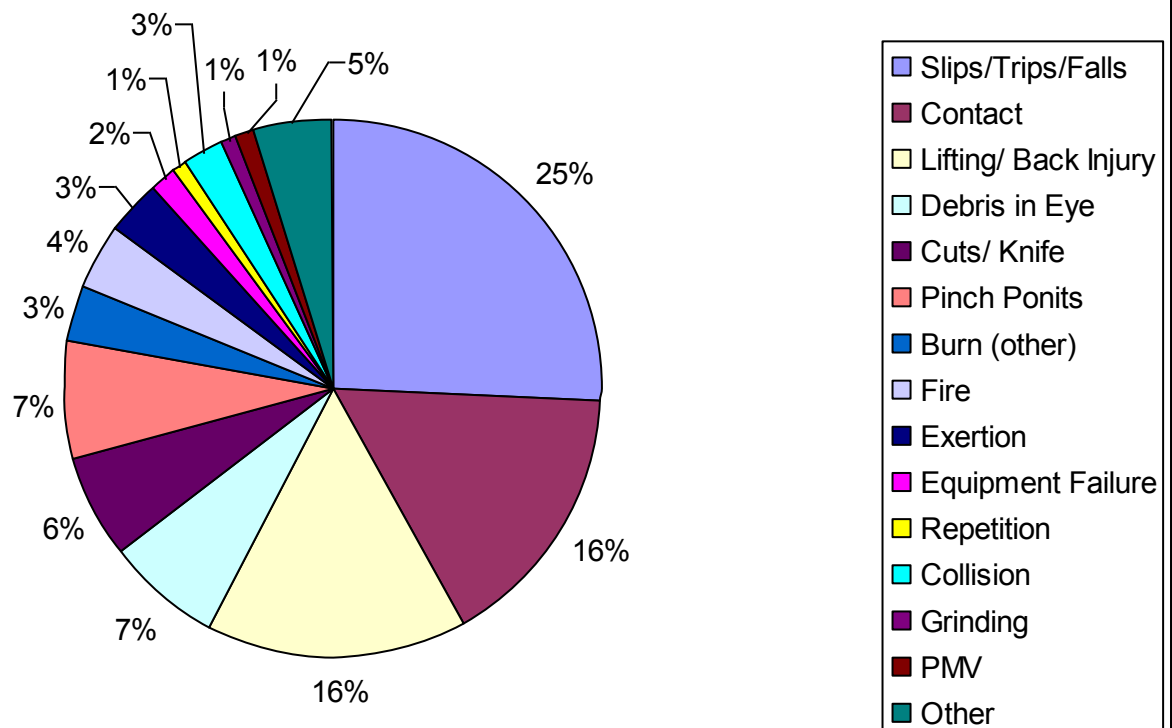
### Class C Incidents : 103

Slips/Trips/Falls - 35	Chipping - 1	Burn - 4	Fire - 1	Exertion - 3
Lifting /Back Injury - 25	Collision - 2	PMV - 2	Pinch point - 9	Equip Fail - 1
Contact - 14	Electric - 1	Cut - 2	Debris - 3	

### Totals Incidents: 444

Slips/Trips/Falls - 114	Debris in eye - 31	Exertion - 14	Equip Fail - 6
Lifting /Back Injury - 71	Cuts/Knife - 27	Chipping - 4	PMV - 4
Contact - 70	Pulling - 3	Repetition - 4	Other - 22
Pinch Points - 32	Burn - 15	Fire - 16	
Collision- 11			

## FY2010 Class C Mishaps, First Aid Cases, and Near Misses



The above pie chart shows the Class C, Near miss and First Aid cases for FY2010. Slips, Trips, and Falls, Contact, and Lifting incidents continue to account for over half of MSC's incidents. The percentage breakdown of incidents into categories is similar to last year categories.

The best ideas for improving safety come from the fleet. Got an idea to help prevent injuries? Please send it to the safety mailbox (MSCHQ\_Safety@navy.mil) and we will share it with the fleet.



## UNITED STATES COAST GUARD

U.S. Department of Homeland Security

## MARINE SAFETY ADVISORY

Assistant Commandant for Marine Safety, Security and Stewardship

October 29, 2010  
Washington, DC

Advisory 01-10

***DISTRACTED OPERATIONS***  
**Don't let it be you!**

Throughout the United States, and across all transportation modes, safety initiatives are being established to address issues related to Distracted Operations. The Coast Guard recognizes the importance of this issue, understands the potential consequences caused by increased operational risk in marine operations, and is supportive of the goals and objectives of the U.S. Department of Transportation and other distracted driving safety initiatives.

With respect to vessel operations, the bridge team management approach to safe navigation is an essential element of risk management and safe vessel operations. The team approach to safe navigation requires the clear, frequent and accurate exchange of information between all crewmembers relative to the safe operation of the vessel. In other evolutions, such as discharging cargo, loading fuels, etc., full attention is required by all involved in order to prevent casualties or pollution incidents. Additionally, when mariners are navigating or working alone, the use of cellular or other devices unrelated to the operation at hand could impede the exchange of vital operational information, delay reaction time, or cause attention lapses of those involved which could result in unwanted circumstances having very serious consequences causing injuries and fatalities, material damage, and environmental impact.

NTSB findings in investigations involving other transportation modes have found that the use of cellular telephones and other wireless devices can degrade performance, slow response times, and increase attention lapses of those in safety-sensitive positions. A recent executive order signed by President Obama prohibits text messaging by federal employees, including contractors, when driving government vehicles or their privately owned vehicles on government business. Most states and the District of Columbia (DOC) have recognized the risk and banned texting while driving. Nine states and the DOC have banned the use of handheld cellular telephones while driving. Lastly, the United States Department of Transportation has established a national initiative focusing on Driving Distracted. (More information is available at <http://distraction.gov>.)

The potential risk associated with improper use of cellular telephones and other devices in the marine environment while navigating or performing other vessel functions should be apparent to vessel owners and operators.

Consequently, the Coast Guard **strongly recommends** vessel owners and operators to develop and implement effective operational policies outlining when the use of cellular telephones and other devices is appropriate or prohibited.

This advisory is for informational purposes only and does not relieve any domestic or international safety, operational or material requirement. Developed by the Headquarters Office of Investigations and Analysis. Questions may be forwarded to [HQS-PF-fltr-G-PCA@uscg.mil](mailto:HQS-PF-fltr-G-PCA@uscg.mil).



# Safety Awards Just Got More Interesting !



What is the big change? MONEY !! Ships who win the DON Safety Excellence Awards will receive a monetary award of \$15,000 each! The monetary award is to be used by the master of the vessel at the behest of the crew to improve the quality of shipboard life. Individual cash payments are not authorized. Video games, gym equipment, and recliner chairs are examples of authorized expenditures. This monetary award demonstrates Military Sealift Command's commitment to safety. The ships which demonstrate an equal commitment to safety will be awarded the prize. Winners will still receive a citation from the Chief of Naval Operations (CNO) and a plaque from the Navy Safety Center.

There are three award categories ;

Category 1: Auxiliary, Combat Logistics Force - AO, AKE, AOE, AE

Category 2: Auxiliary, Special Mission - AH, ATF, ARS, AGS, AGOS, AGM, ARC, AS, LCC

Category 3: Auxiliary, Strategic Sealift - AOT, AKR, AK, AG, AVB

Military Sealift Command (MSC) and Military Sealift Command Fleet Support (MSFSC) hope these awards will promote safe work habits through out the year. Great safety habits and ideas which could help other ships need to be shared.

In mid November ships were notified of the changes to our safety award program. Submitted entries had to be submitted by 15 December 2010. These entries must cover five areas and can also cover any additional safety achievements your ship has accomplished. The five areas which need to be addressed in a ship's submitted package are:

1. Reporting - especially sharing near misses,
2. Safety Culture,
3. Shipboard Safety Contributions,
4. Training,
5. Safety Initiatives.



One of our three CNO Safety Award winners will then be selected for the Secretary of the Navy's Safety Award. The winner is selected by the Navy Safety Center based on ships entries in the CNO Safety Awards. This award is the highest safety award in the Navy and is presented to the winning ship in the spring. Good Luck to all our ships !



## *Namesake Section*



**T-AO 195 USNS LEROY GRUMMAN** is named after Leroy Randle Grumman, an American aeronautical engineer, test pilot, and industrialist. Grumman earned a Bachelor of Science degree in mechanical engineering from Cornell University in 1916. After the United States entered World War I, Grumman enlisted in the U.S. Naval Reserve in June 1917 as a Machinist's Mate, second class. In 1919, the U.S. Navy stationed Grumman at Loening Aeronautical Engineering Corporation in New York City as the project engineer to supervise the firm's construction of 52 Loening M-8 monoplane observation/fighter aircraft under contract to the Navy. His duties included test flying as well as serving as the production supervisor. Grover Loening, the company president, was so impressed with his work that he offered Grumman a position. Grumman resigned his Naval commission in October 1920, becoming a test pilot flying various types of Loening amphibians while doing some design and development on these aircraft. He quickly moved up in the Loening organization, becoming the factory manager and then general manager with responsibility over aircraft design. In 1929, he co-founded Grumman Aeronautical Engineering Co. later to become Grumman Aerospace Corporation, now part of Northrop Grumman.

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**T-AGS-61 USNS SUMNER** is named after Thomas Hubbard Sumner who is best known for developing the celestial navigation method known as the Sumner Line or line of position. He entered Harvard at the age of fifteen and graduated at the age of 19. Three years later he enrolled as a merchant seaman on a ship engaged in the China trade and within eight years he had risen to the rank of Captain and was Master of his own ship. On November 25, 1837, Sumner sailed from Charleston, South Carolina, bound for Greenock, Scotland, and it was

during that voyage, while entering the channel of Saint George and the Irish sea, that he discovered the principle upon which his new method of navigation was based. He took some years to perfect it and published it in the form of a short book in 1843.



**T-AKR-297 USNS YANO** is named in honor of US Army Sergeant First Class Rodney J. T. Yano who was posthumously awarded the Medal of Honor for his actions near Bien Hao, Republic of Vietnam, on January 1, 1969. While serving with the Air Cavalry Troop, Sfc. Yano was performing the duties of crew chief aboard the troop's command-and-control helicopter during action against enemy forces entrenched in a dense jungle. From an exposed position

in the face of intense small arms and antiaircraft fire he delivered suppressive fire upon the enemy forces and marked their positions with smoke and white phosphorous grenades. A grenade, exploding prematurely, covered him with burning phosphorous, and left him severely wounded. Flaming fragments within the helicopter caused supplies and ammunition to detonate. Although having the use of only 1 arm and being partially blinded by the initial explosion, Sfc. Yano completely disregarded his welfare and began hurling blazing ammunition from the helicopter. In so doing he inflicted additional wounds upon himself. Yano's indomitable courage and profound concern for his comrades averted loss of life and additional injury to the rest of the crew.

# Recent Incidents



his back.

CIVMAR was reaching down for a line when he felt a pain in

**Causal Factors** – improper lifting technique

**Lessons Learned** – While lifting an object, the object should be as close to your body as possible.



of the deck below caught on fire.

A contractor was cutting a metal plate in the galley when the lagging on the overhead

**Causal Factors** – sparks contacting lagging

**Lessons Learned** – Adjacent spaces must be inspected prior to beginning hot work. Fire watches should be posted as necessary.



ing in a bruised head.

CIVMAR was pulling a tarp off a lube oil pump when he tripped and fell result-

**Causal Factors** – tripping and falling

**Lessons Learned** – Always look where you are about to step especially while walking backwards.



he cut his finger.

CIVMAR was cutting into a tube of silicone grease to remove last of the tubes contents when

**Causal Factors** – knife cut

**Lessons Learned** – When done squeezing the silicone out of a tube throw it away. Do not cut into tubes of silicone.



hand caught in the joint between the ladder and handrail.

CIVMAR was raising the handrail on the accommodation ladder when she got her

**Causal Factors** – finger caught in pinch point

**Lessons Learned** – Prior to working with moving parts it is important to identify pinch point and avoid having hands near them.



under tension released striking the CIVMAR's face.

While a CIVMAR was inspecting a diesel generator, a lever arm which was

**Causal Factors** – lever arm releasing during inspection

**Lessons Learned** – Ship is looking into the possibility of redesigning lever arm to prevent future injuries.



CIVMAR was moving a hot pan of food when hot grease spilled on his leg.

**Causal Factors** – hot grease spilling on leg

**Lessons Learned** – Galley workers need to identify hazards in their work environment just like other CIVMARS. If extra protective equipment is need to ensure safety it should be worn.



## Readiness Through Safety !

# This Date in History

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Bob Scofield  
Robert Kenney  
Jim Hayes  
Mike Brown  
Jonathan Berman  
Lyndsay Beaulieu  
John Cofrancesco

MSFSC Safety-ISM@navy.mil  
757-443-2722

DP Francis Pelosi

Deputy DP Mark Stoegbauer

Frank Ridge  
Jim Mahon  
Daphanie Brown  
Perry Corbett  
Chet Barnett  
Mark Cook  
Ed Terpening



30 January 1945 - The **MV WILHELM GUSTLOFF** was constructed by the Blohm & Voss shipyards and served as a German flag-ship from 1937-1945. The WILHELM GUSTLOFF's final voyage was during Operation Hannibal when it was sunk while participating in the evacuation of civilians and personnel who were surrounded by the Red Army in East Prussia. The ship was hit by three torpedoes from the Soviet submarine S-13 in the Baltic Sea and sank in less than 45 minutes. An estimated 9,400 people were killed in the sinking. If accurate, this would be the largest known loss of life occurring during a single ship sinking in recorded maritime history.

15 December 1976 - The **ARGO MERCHANT** ran aground on Middle Rip Shoal about 25 nautical miles southeast of Nantucket and more than 27 miles off her intended course. The ship was loaded with 7,700,000 gallons of No. 6 fuel oil in Puerto La Cruz, Venezuela and sailing for Boston. It was later established that the ship carried two unqualified crew as helmsmen, a broken gyrocompass, inadequate charts, and an inaccurate radio direction finder. The thirty-eight members of the crew were evacuated, but the shallow waters and weather conditions made it impossible to offload the oil or salvage the ship. On 21 December 1976, Argo Merchant broke apart and emptied its entire cargo of fuel oil, enough to heat 18,000 homes for a year. Fortunately, northwesterly winds blew the 60 by 100 nautical mile oil slick offshore, and coastal fisheries and beaches were spared the worst.

24 March 1989 - The **EXXON VALDEZ** oil spill occurred in Prince William Sound, Alaska, when the oil tanker bound for Long Beach, California struck Prince William Sound's Bligh Reef and spilled crude oil. It is considered to be one of the most devastating human-caused environmental disasters. As significant as the VALDEZ spill was—the largest ever in U.S. waters until the 2010 Deepwater Horizon oil spill—it ranks well down on the list of the world's largest oil spills in terms of volume released.

14 December 1996 - The **BRIGHT FIELD** lost its propulsion and veered into the Riverwalk Shopping Mall in New Orleans. Four people were seriously injured and at least one hundred suffered minor injury. The mall is a strip of stores and condos overlooking the Mississippi River. Over 200 feet of dock and the condominium complex were destroyed by the impact. The probable cause of the accident was failure of the operating company to adequately manage and oversee the maintenance of the engineering plant aboard the vessel.